SECRET

DATE: 2 October 1963

PLACE: [redacted] 25X1A

ATTENDEES: [redacted]

SUBJECTS: Zoom Tube Magnifier, Dual Power Macroscope, Projected Scale Micrometer [redacted] High Power Stereoscope and Numerous Improvements to Zoom 70 25X1A

DISCUSSION:

1. [redacted] has proposed tentative specifications for an advanced tube magnifier with a zoom magnification range of 6X-18X. It will be small, light in weight and present an erect image. [redacted] has promised a firm proposal within 4 weeks. 25X1A 25X1A

2. A prototype of the production model of the Dual Power Measuring Macroscope has been assembled and was available for our inspection. The instrument appears very promising. An improved rotation clamp for the filar eyepiece was recommended. [redacted] has agreed to change this item. 25X1A

3. [redacted] has constructed a partially completed prototype of the Projected Scale Micrometer. The completed items look very good; only the micrometer drum is missing. [redacted] can start work just as soon as the contract is let. 25X1A 25X1A

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4. The [redacted] High Power Stereoscope is progressing rather slowly. Some design areas still have not been finalized. [redacted] is proposing a different mounting stand. It is doubtful at this point whether or not the new stand concept would be advantageous to us. This problem area will require considerable thought on our part since it governs how well the instrument will fit our present light tables. 25X1A

5. A detailed conversation was held with [redacted] concerning shortcomings of the current Model II Zoom 70. Pressure was applied for [redacted] to design and produce a vastly improved clip-on rhomboid. The present system is very poorly designed and unsatisfactory under continuous heavy use. It is quite probable that the new versatile stereomicroscope will be too expensive to ever totally replace the Zoom 70; consequently, a general overall upgrading of the Zoom 70 was discussed. What is intended is an examination of the Model II system to determine what improvements could be made within the present design limitations. These changes would include the provision of additional ruggedness, more precise motions and the substitution of optical components to improve resolution and viewing ease. An improved light base is also being considered, but as an integral part of another problem. 25X1A 25X1A

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[redacted] was asked to investigate these possibilities and submit a proposal which spells out those changes which are possible, along with their relative costs. 25X1A

DATE: 3 October

PLACE: [redacted] 25X1A

ATTENDERS: [redacted]

SUBJECT: A Study of The Effects of Exposing Photographic Materials With Lasers and additional minor items

DISCUSSION:

1. Detailed discussions were held with [redacted] concerning the possible effects of exposing photographic materials with lasers. [redacted] as expected, has some of the answers at present; however, our discussions indicated that there are many definite problem areas, some of which, we had not previously anticipated. A few of these problem areas are as follows: 25X1A 25X1A

a. There are a number of additional items that may cause diffraction phenomena in addition to those we had considered; such as [redacted] Bubbles," gaps between base/emulsion and the base/gel, and variations in thickness of the extruded base -- the fluid gate won't solve this problem because the base and emulsion have different refractive indexes. [redacted] base has a greater variation than acetate. 25X1A 25X1A

Due to the polarized nature of laser light, stresses in the record film could produce diffraction patterns. Since the film, in taking and processing, is drawn through many tight radius turns, over rollers, etc., this places the external layers of the film (emulsion and gel) under alternate compression and tension. These strains could introduce permanent stresses in the film.

b. The depth to which red light will penetrate the recording film governs its scattering effects and, as a consequence, its resolution. There are some unanswered questions in this area.

c. As bases become thinner, and thinner, the heat retention of the silver halide may become a problem on dense negatives.

2. [redacted] will submit a study plan indicating which areas they feel require research along with the cost and time considerations involved. 25X1A

3. [redacted] has developed a small "breadboard" to demonstrate contrast inhanced viewing. The system uses back lighting along with ultraviolet incident light. It does not appear very promising. [redacted] will send it to NPIC shortly for our evaluation and comment. 25X1A 25X1A

4. [redacted] discussed the Teleprompter slide problem. [redacted] has taken some tentative steps toward a solution. New approaches were discussed. 25X1A 25X1A

CONCLUSIONS AND RECOMMENDATIONS:

1. NPIC should seriously consider an 'upgrading' of the current [redacted] Zoom 70 and the development of a zoom tube magnifier. 25X1A

2. [redacted] agrees that there are numerous gaps in their knowledge concerning lasers and their effect upon photographic materials, and that the proposed research study is both desirable and timely. 25X1A

[redacted] 25X1A
Development Branch, P&DS